

REMARKS

Claims 1 and 16 are amended herein, and new claims 24-25 are added. Thus, claims 1-9 and 15-25 are pending in this application. In view of the above amendments and the following remarks, Reconsideration of the outstanding office action is respectfully requested.

The Office has rejected claims 1, 4-9, and 18-23 under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,951,441 to Dalebout et al. (Dalebout) in view of U.S. Patent No. 4,063,463 to Nordengren (Nordengren). In addition, the Office has rejected claims 2-3 and 15-17 under 35 U.S.C. 103(a) as being unpatentable over Dalebout in view of Nordengren and further in view of U.S. Patent No. 1,728,673 to Driver (Driver).

In particular, the Office asserts that Dalebout discloses a belt comprising a substrate (18/50) having a first and second surfaces and first and second ends, which form a seam, an elastomeric (20/30) having first and second ends and surfaces, wherein the elastomer is adjacent and in contact with the first surface of the substrate and the first and second ends of the elastomer form an interlocking puzzle cut seam (col. 4, lines 26-34).

The Office correctly states that Dalebout does not disclose that the first and second ends are mechanically, frictionally and detachable interlocked together by a between the ends. However, the Office asserts that Nordengren discloses a belt having first and second ends with interlocking puzzle cuts seam that are mechanically and frictionally locked together in order to frictionally lock the ends of the belt and to form a very strong joint, and that it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the seam of Dalebout to include the puzzle cut of Nordengren in order to frictionally lock the ends of the belt together and to form a very strong joint.

In addition, the Office asserts that, while Dalebout in view of Nordengren fail to disclose that both of the first and second seams are interlocked, Driver discloses a belt with adjacent materials (1, 2) in contact with each other having interlocking ends in order to create a smooth, flat surface to an strengthen the seamed joints, and that it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the belt of Dalebout so that both seamed joints are interlocking joints in view of Driver in order to create a smooth, flat surface and to an strengthen the seamed joints.

With respect to claims 4-5, 7-9, and 18-23, the Office correctly states that Dalebout and Nordengren do not disclose the belts modulus of elasticity and thickness, the elastomeric layer thickness and the dimensional range of the nodes and seam. However, the Office asserts that it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the belt so that it has a modulus of elasticity of 75 psi to about 3000 psi, the belt has thickness of 0.25 mm to about 5 mm, the elastomeric layer has a thickness of 0.25 mm to about 4.75 mm, the diameter of the nodes from about 0.6 mm to about 3mm and the nodes are in the range of 10 to about 20 nodes per long along the seams since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

However, none of Dalebout, Nordengren, or Driver, alone or in combination, teach, disclose, or suggest that “the interlocking puzzle cut seam between the first and second ends of the elastomeric layer provides a mechanically removable connection between the first and second ends of the elastomeric layer without any additional processing of the interlocking puzzle cut seam” as is recited in claims 1 and 15.

Dalebout relates to a treadmill belt 14 which including a base layer 26, which can comprise a woven fabric material, natural materials, or combinations thereof that are preferably non-extendible, and a stabilizing layer 28 over top of base layer 26, which can comprise polyvinylchloride, urethane, epoxy resins, and other polymeric resins, where the base layer 26 and stabilizing layer 28 form a compound layer 30. (Col. 3, lines 26-27, and line 33 to col. 4, line 9). The ends 32 and 34 of the compound layer are attached to each other by heating fingers extending from the ends 32 and 34 to melt the fingers together, thereby forming a continuous engagement belt 48 (col. 4, lines 19-34). Additionally, Dalebout discloses that, “heated irons 46 melt fingers 42 and 44 together to form a continuous engagement belt.” (Col. 4, lines 33-35). Further, Dalebout teaches the ends of the cushion layer 50 may also be attached to each other by stitching, adhesives, or tapes (col. 5, lines 5-11). Thus, Dalebout teaches a substantially permanent connection between the ends by either melting the ends of the compound layer to adhere them together or adhering the ends of the cushion layer by stitching, adhesives, or tapes, and discloses fingers having a zigzag conformation. However, Dalebout neither discloses nor suggests an arrangement “wherein the interlocking puzzle cut seam between the first and second ends of the

elastomeric layer provides a mechanically removable connection between the first and second ends of the elastomeric layer *without any additional processing of the interlocking puzzle cut seam*” as is recited in claims 1 and 15. Adhesives, stitching, and tapes would all require additional processing to separate.

In addition, contrary to the Office’s assertions, Nordengren fails to overcome the deficiencies of Dalebout. Nordengren generally discloses a method of fitting a filter belt to a filter assembly. In particular, Nordengren teaches a rubber belt wherein each end of the belt “is provided with recesses which correspond to projections on the opposing ends of the belt” such that “when joining the two ends of the belt together, the projections of one end portion are engaged in the recesses of the other.” (Col. 2, lines 19-24, Figs. 2, 4). However, Nordengren clearly teaches that after the “connecting members are inserted in respective recesses to form an endless belt having a friction-locked joint, the ends of said belt are *fully vulcanized*, and the belt is tensioned.” (Col. 2, lines 39-43). Thus, the belt disclosed by Nordengren clearly has “fully vulcanized” ends which are “joined together” to form an endless belt. (Col. 2, lines 55-64). In addition, the ends of the belt are then be placed “in a heating device which is arranged to supply the requisite amount of heat at the *necessary temperature for finally vulcanizing and joining together said ends.*” (Col. 2, lines 55-60). In particular, the vulcanization is accomplished by placing the ends of the belt “between two heating jaws...which are heated electrically for joining the belt for as to form an endless belt.” (Col. 3, lines 35-43). This teaching specifically teaches away from the “removable” nature of the connection between the first and second ends of the elastomeric layer as is recited in the claims as amended.

Moreover, in responding to Applicants’ prior arguments filed in the Amendment dated Applicant’s arguments filed February 23, 2005, which are hereby incorporated by reference in their entirety, the Office stated that Nordengren clearly states that the belt joints are in frictionally locking position and further vulcanized to strengthen the joints. However, the Office further conclusively stated that is well known in the art that by vulcanizing two puzzle end to form a common joint, the vulcanizing process does not allow for the joints to be heated so as to become a plastic, and that, therefore, *the vulcanized joint can be detachable by heating the joints at a temperature below the plastic range and detaching the ends.* In this regard, the Office asserts that vulcanizing the belt joints does not allow for the joints to be

melted or heated beyond the plastic range and therefore “requires the joints to be detached *by suitable process.*”

Thus, as acknowledged by the Office, Nordengren teaches to “fully vulcanize” the ends of the belt to “form an endless belt” which *must be heated to become detachable*. Thus, Applicants submit that Nordengren directly teaches away from an arrangement “wherein the interlocking puzzle cut seam between the first and second ends of the elastomeric layer provides a mechanically removable connection between the first and second ends of the elastomeric layer *without any additional processing of the interlocking puzzle cut seam*” as is recited in claims 1 and 15. Thus, Applicants submit that claims 1 and 15 are not rendered obvious by the teachings of Dalebout or Nordengren, alone or in combination, and respectfully request that these rejections be reconsidered and withdrawn.

Moreover, even if the Office disagrees with the contentions above, Applicants submit that claims 4-5, 7-9, 18-19, and 21-23 are clearly allowable over the combined teachings of Dalebout, Nordengren, and Driver. In the Office Action, the Office correctly states that none of Dalebout, Nordengren, or Driver discloses the belts modulus of elasticity and thickness, the elastomeric layer thickness and the dimensional range of the nodes and seam recited in these claims. However, the Office states a conclusion that it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the belt so that it has a modulus of elasticity of 75 psi to about 3000 psi, the belt has thickness of 0.25 mm to about 5 mm, the elastomeric layer has a thickness of 0.25 mm to about 4.75 mm, the diameter of the nodes from about 0.6 mm to about 3mm and the nodes are in the range of 10 to about 20 nodes per long along the seams since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233. However, the Office has offered no evidence whatsoever in support of this conclusion, and has failed to establish a *prima facie* case of obviousness for at least these claims.

In this regard, the Office’s attention is directed to page 9, line 27 to page 10, line 3 of the Specification, which clearly sets forth advantages of the specific configurations recited in these claims which are not disclosed whatsoever in the references. In particular, “the seaming parameters for the puzzle cut seam are adjusted to achieve optimum mechanical advantage for the conformable belts of the present invention. For example, larger sized nodes with a lower frequency of nodes per inch, as compared to rigid, thin belts, may be used to

achieve optimum mechanical advantage. In particular, nodes of from about 0.6 mm to about 3 mm in diameter, with from about 10 to about 20 nodes per inch along the seam width are particularly useful. Seams are typically from about 1.5 mm to about 4 mm in width to minimize any time out or nonfunctional area of the belt.” In addition, discussions on page 12, line 29 to page 13, line 2 of the Specification clearly set forth specific belt thicknesses and particular modules of elasticity. “The seamed, conformable belt 10 in accordance with the present invention is typically from about 0.5 mm to about 5 mm in thickness. In addition, the seamed, conformable belt 10 of the present invention typically has a modulus of elasticity of from about 75 PSI to about 3,000 PSI, corresponding to about 20 to about 90 Shore A hardness.”

As Dalebout, Nordengren, and Driver completely fail to disclose any of these particular characteristics and their unexpected advantages, Applicants submit that, at a minimum, claims 4-5, 7-9, 18-19, and 21-23 are clearly allowable over the combined teachings of Dalebout, Nordengren, and Driver, and respectfully request that these rejections be reconsidered and withdrawn.

Moreover, new claims 24 and 25 are also allowable in view of Dalebout and Nordengren. In particular, Dalebout teaches that the cushion layer is “attached” to the top surface of the engagement belt, for example, by a pressure sensitive adhesive, adhesive stitching, or flame attachment. (Col. 4, lines 53-60). Thus, even if the first and second ends of the cushion layer of Dalebout were attached and vulcanized in accordance with Nordengren, and if, as the Office asserted, the “fully vulcanized” connection was detachable, the cushion layer of the resulting belt would still be “attached” to the engagement belt, and the connection between the ends of the cushion layer would not be a “removable connection” that would “facilitate removal and replacement” of the cushion layer “without necessitating removal or modification” of the engagement belt. Thus, the combined teachings of Dalebout and Nordengren fail to teach or suggest all the claim limitations recited in claims 24 and 25.

To the contrary, with the present invention, lack of bonding or vulcanization between the ends of the elastomeric layer has a distinct advantage over the cited prior art – *the enablement of the elastomeric layer of the belt to be easily replaced, without the need for replacing the substrate.* (See Specification, page 5, lines 26-28, and page 7, lines 20-21). Further, *the lack of bonding between the ends of the elastomeric layer eliminates the need for and difficulty with selecting and using a bonding agent*, e.g., an adhesive of appropriate

conformability and modulus of elasticity to join together the ends of the elastomeric layer.
(See Specification, page 5, lines 28-31, and page 7, lines 20-24).

Thus, the combined teachings of Dalebout and Nordengren fail to teach or suggest all of the limitations in claims 24-25, and the novel features recited in the claims would not have been obvious to a person of ordinary skill in the art at the time of the invention in view of the combined teachings of Dalebout and Nordengren.

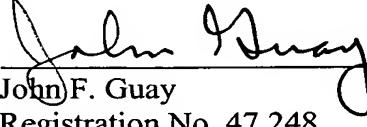
Accordingly, Applicants respectfully request that the Office reconsider and withdraw the rejections of claims 1 and 15 under 35 U.S.C. § 103(a). Since claims 2-9 and 24 depend from and contain the limitations of claim 1 and claims 16-23 and 25 depend from and contain the limitations of claim 15, they are distinguishable over the cited references and patentable in the same manner as claims 1 and 15.

The present amendment is submitted in accordance with the provisions of 37 C.F.R. §1.116, which after Final Rejection permits entry of amendments placing the claims in better form for consideration on appeal. As the present amendment is believed to overcome outstanding rejections under 35 U.S.C. § 103, the present amendment places the application in better form for consideration on appeal. It is therefore respectfully requested that 37 C.F.R. §1.116 be liberally construed, and that the present amendment be entered.

In view of all of the foregoing, Applicants submit that this case is in condition for allowance and such allowance is earnestly solicited.

Respectfully submitted,

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